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NATURAL DISASTER REDUCTION: EFFECTS OF DISASTERS ON MODERN SOCIETIES

Technical session

Addendum

Risk management and preventive planning in megacities: a scientific approach for action

Summary of presentation by Mr. Philippe Masure, International Association of Engineering Geology

1. It is expected that by the year 2000 about 50 per cent of the world's population, or 6.5 billion people, will live in an urban environment and thus will be concentrated on less than 0.7 per cent of the land surface.

2. The accelerating growth of megacities throughout the world has produced impacts on the physical environment that, even in well-established cities, are self destructive; in addition, the demand for ground space in rapidly growing cities, has led to the use of land that is fraught with natural hazards when developed. These two tendencies increase the number of victims of natural disasters and the vulnerability of modern societies, especially in poor countries.

3. Within the framework of the International Decade for Natural Disaster Reduction, the concept of sustainable development requires an overall approach to problems, taking account of all elements that can influence the environment for urban planning and bearing in mind the objective of public safety and health, that is:

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(a) Environmental assessment of projects and the protection of the environment;

(b) Continuous monitoring of the environment and environmental management;

(c) Study and management of risks, including plans for their prevention and crises preparedness;

(d) Design and use of spatial models of the environment.

4. The sound and safe management of the physical environment and natural hazards is a fundamental factor for urban planning. It is neither a privileged nor a dominant factor, but it should never be neglected.

5. Multi-disciplinary teams should be created and coordinated with a view to the acquisition of complex data that must be processed and managed in a dynamic manner and that must be translated into easily understandable recommendations and instructions for the users (decision-makers and persons charged with educating the population).

6. This requires from the scientists and engineers and from the politicians and other economic and social decision-makers, as well as from the population in general, that a permanent dialogue be created and maintained, further enriched by adapting sectoral experiences from other fields.

7. In this context, applied sciences have a central role to play in filling the major gaps in our knowledge, improving and adapting disaster-mitigation techniques, and developing integrated methodologies to manage both risks and the environment in urban planning and institutional systems.

8. Some of the research and development programmes to be developed in this context are:

(a) Economic evaluation of the direct and indirect damage caused by natural disasters in megacities; and cost-effect analyses of the prevention programmes;

(b) Definition of the concept of geo-ecological capacity of urban sites (resources and fragility) in order to ensure a sustainable development;

(c) Systems analysis models of physical instability of megacities;

(d) Preparation of a geo-ecological information system to help in the decision-making process for the urban planning of megacities.

(e) Adaptation of construction codes to different socio-economic and technological levels.